

Thesis/
Reports
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Wildfire Risk, Hazard, And Value In The Wildland-Urban

Interface Of The Bear River Mountains, Northern Utah

Submitted by

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PROBLEM STATEMENT

The Western Governors' Association has recommended that a national hazard and risk assessment model be developed and implemented. Governors believe that "...a comprehensive review of fire policy in the wildland-urban interface is critical to preventing future loss of life, property, scenic values, and wildlife habitat (NFPA, Wildfire News and Notes)."

In Utah, as well as most of the West, communities are encroaching into the wildland-urban interface at an astounding rate (Cornell, et al., Utah Mitigation Plan). Citizens seeking peace and solitude move to these areas unaware of the dangers and responsibilities associated with interface living. To homeowners this intermixing zone is a heaven on earth, but for zoning, planning, and fire specialists it is a nightmare.

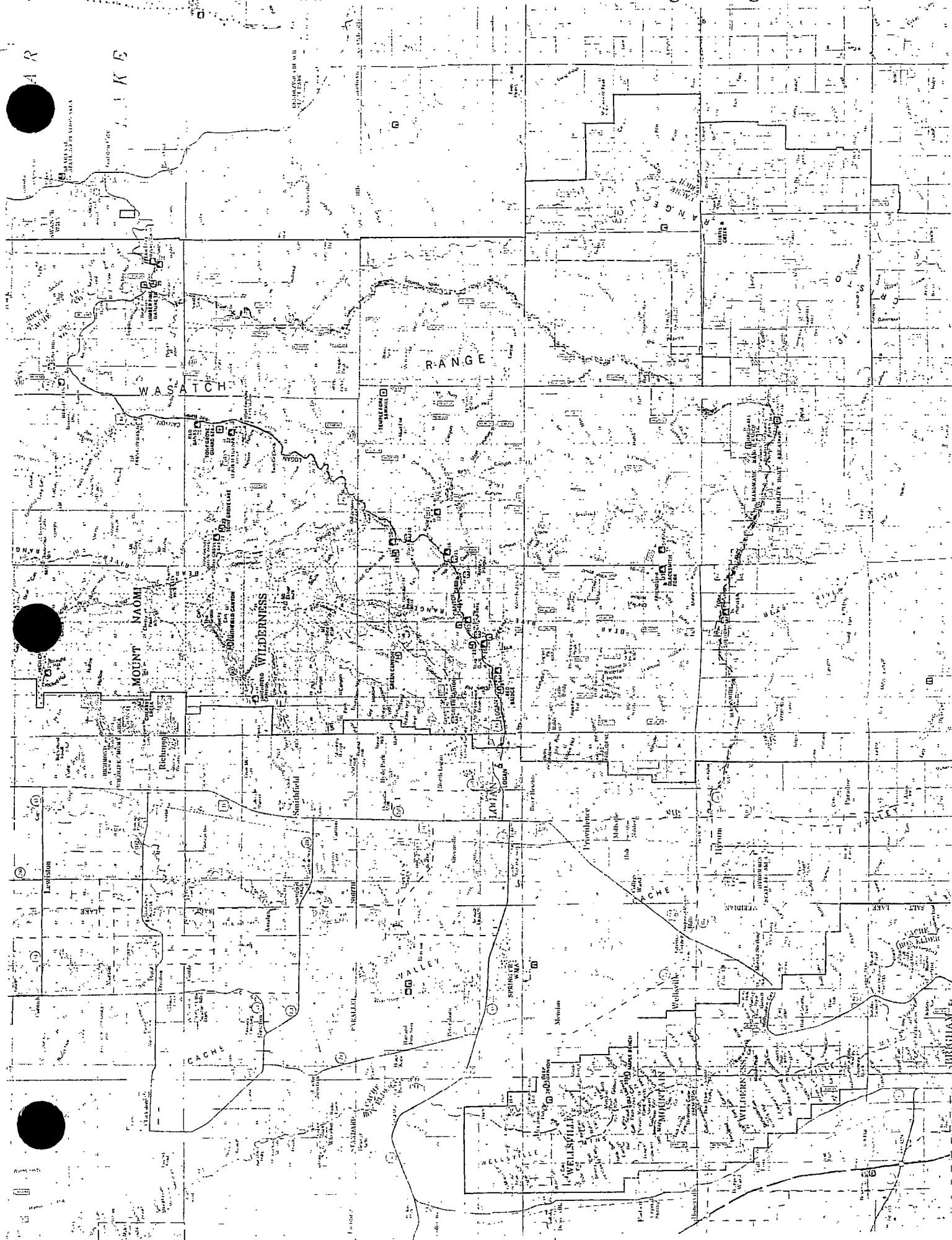
Currently only one county in Utah (Utah County) has adopted a comprehensive ordinance for building homes in the wildland-urban interface (Cornell, et al.). The complacency among homeowners and seeming lack of state and federal attention is both surprising and unsafe. Very few homeowners are taking precautionary measures to protect their homes from wildfire, consequently putting their homes, themselves, and firefighters at great risk.

It is time that fire managers shift from suppression to prescription. A proactive rather than a reactive approach is needed in fire management. It is known that fire plays a critical role in nature (Mutch, Journal of Forestry), yet old suppression practices are still employed, resulting in high suppression costs and the tragic loss of human life and property.

The proposed wildland-urban interface assessment model offers a large contribution toward managing Utah's interface problems. Because wildland-urban development in Cache and Rich counties is in its early stages, these counties are in an ideal situation. If high fire danger

areas can be identified now and the appropriate mitigation measures enacted, such as zoning regulations and fire ordinances, when the anticipated growth does come the community will be better prepared.

PILOT TEST AREA: The Greater Logan Ranger District (28 Quads)



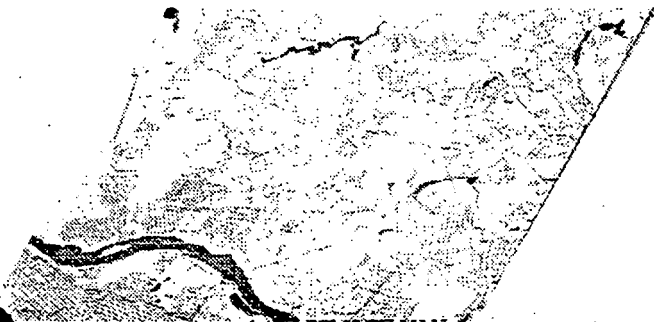
DATA LAYERS

DERIVED DATA



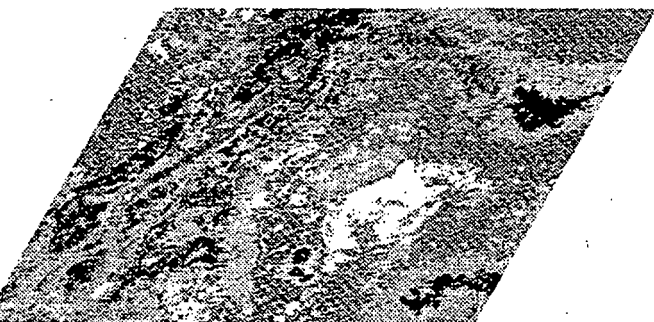
TOPOGRAPHY

Contours
Aspects
Slopes
Watersheds



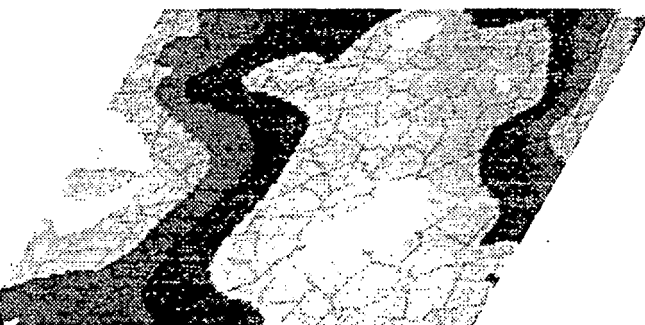
INFRASTRUCTURE

Roads
Trails
Historic & Recreational Sites
Cultural Resources
Land Status & Ownership



VEGETATION

Vegetation Type
Fuel Model Classification
Health (Insect & Disease)
TES Flora
Wildlife Habitat



CLIMATE

Wind Direction & Speed
Precipitation Amounts
Temperature
Relative Humidity

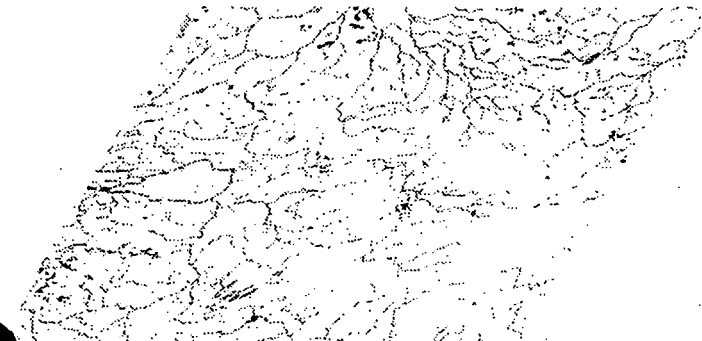
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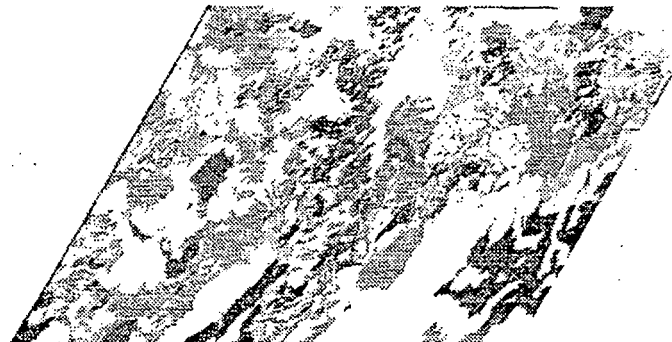
FIRE HISTORY

**Fire Extent
Fire Cause**



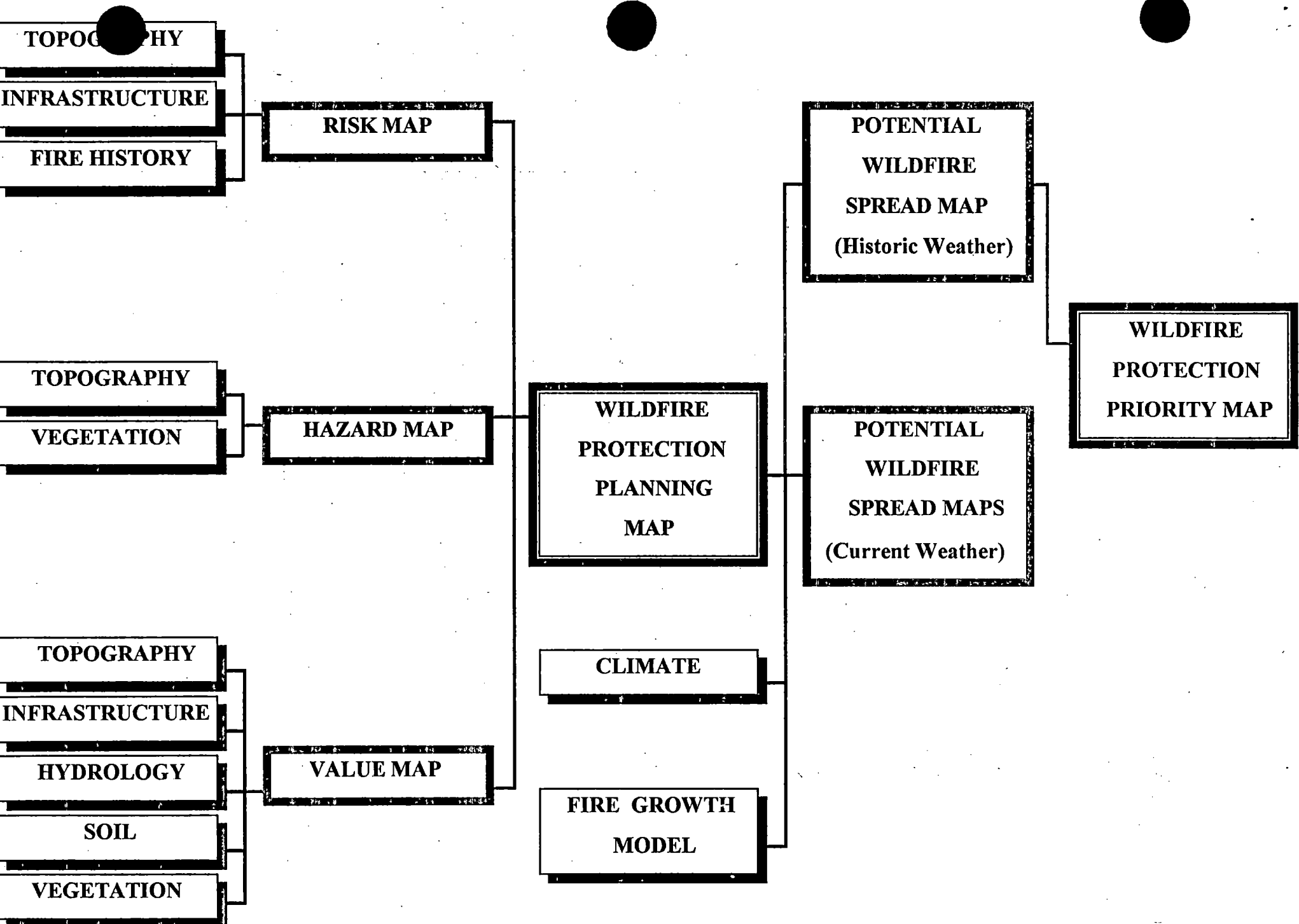
HYDROLOGY

**Stream Type
Rivers
Lakes & Reservoirs**



SOIL

**Soil Type
Slide Potential
Hydrophobic Potential**



BENEFITS

Homeowners

Homeowners will benefit by increased awareness of the dangers associated with living in the wildland-urban interface. Citizens will be alerted to the high fire danger areas and can take the necessary precautionary measures. A booklet will be distributed containing GIS maps and other information, including how to create a defensible space through landscape manipulation, the use of proper building materials, and fire-resistant plant species.

Local Officials

Since GIS is a commonly used modeling and planning technology, it lends itself particularly well to the sharing of information among different agencies. Cache County is currently revising its county plan. Planners, zoning coordinators and commissions, and fire chiefs will be able to use this valuable information. The newly created database and digitized maps can be accessed by agency GIS systems and managers' personal PC's for application and updating.

State and Federal Officials

All state and federal agencies will also have access to the database and maps. Fire management officers will be able to accurately model fires in progress and predict spread and intensity (Green, Kass, et al., Journal of Forestry). This will be particularly useful when doing escape fire analyses and potential prescribed natural fire (pnf) designation. At this time, the Wasatch-Cache National Forest has no provision in its forest plan for pnf's; however, as part of

LITERATURE CITED

Cornell, Gary, et al. 1994. Urban-Wildland Interface Wildfire. Utah State Mitigation Plan. pp. 1-3.

Green, Kass, et al. 1995. FIRE! Using GIS to predict fire behavior. Journal of Forestry. 93(5): 21-25.

Mutch, Robert W. 1994. A return to Ecosystem Health. Journal of Forestry. 92(11): 32.

NFPA. 1995. Western Governors' Association Wildland-Urban Interface Fire Action Report. Wildfire News and Notes. 9(1): 1-3.